

HMU Series

Basic pressure sensors

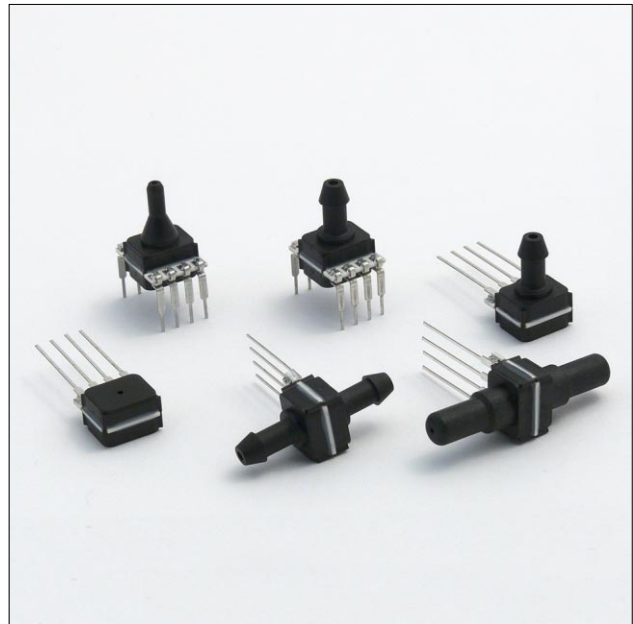
FEATURES

- 100 mbar to 10 bar, 1 to 150 psi absolute, gage or differential pressure
- Increased media compatibility¹
- Wide operating temperature range
- SIL and DIP housings
- RoHS compliant
- Quality Management System according to ISO 13485:2003 and ISO 9001:2008

MEDIA COMPATIBILITY^{1,2}

High pressure port: To be used with gases and liquids which are compatible with the wetted materials (high temperature polyamide, ceramic AL_2O_3 , epoxy, fluorosilicone, glass, silicon).

Low pressure port: To be used with non-corrosive, non-ionic working fluids such as clean dry air, dry gases and the like.



SPECIFICATIONS

Maximum ratings

Supply voltage V_s ... 12 V_{DC}

Environmental

Temperature ranges

Operating -40 ... +85 °C (-40 ... +125 °C)⁷
Storage³ -40 ... +125 °C

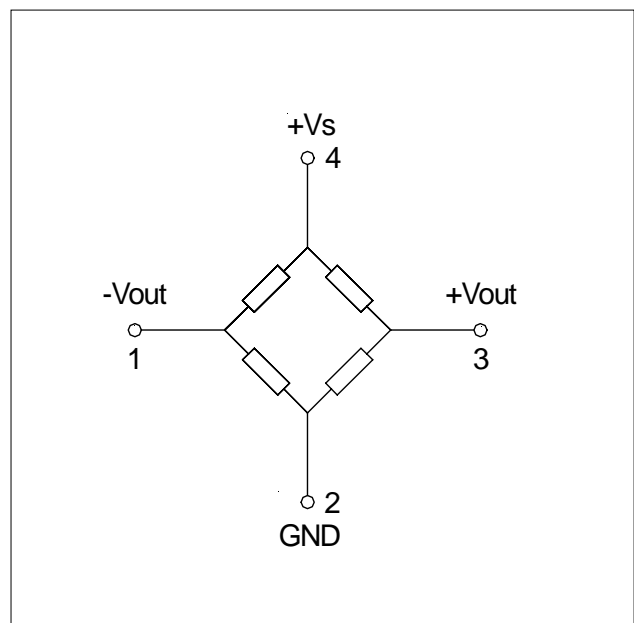
Humidity limits (non-condensing) ...95 %RH⁸
(100 % condensing or direct liquid media on high pressure port¹)

Vibration max. 10 g, 10...2000 Hz, random
(EN 60068-2-64)

Mechanical shock max. 50 g, 11 ms
(EN 60068-2-27)

Lead solder temperature max. 270 °C
(JESD22-B106D)

ELECTRICAL CONNECTION



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PRESSURE SENSOR CHARACTERISTICS

($V_S=5.0 V_{DC}$, $T_A=25\text{ }^\circ\text{C}$, RH=50 %, pressure applied to high pressure port)

Bar pressure ranges

Part number	Operating pressure	Proof pressure ⁴	Full-scale span ⁵		
			Min.	Typ.	Max.
HMUM100...	0...100 mbar	2 bar	30 mV	60 mV	120 mV
HMUM350...	0...350 mbar	2 bar	40 mV	100 mV	160 mV
HMUB001...	0...1 bar	5 bar	60 mV	100 mV	140 mV
HMUB2x5...	0...2.5 bar	10 bar	60 mV	100 mV	140 mV
HMUB005...	0...5 bar	14 bar	60 mV	100 mV	140 mV
HMUB010...	0...10 bar	14 bar	60 mV	100 mV	140 mV
HMUB001A...	0...1 bara	4 bara	30 mV	50 mV	70 mV
	0...2 bara	4 bara	60 mV	100 mV	140 mV
HMUB004A...	0...4 bara	8 bara	60 mV	100 mV	140 mV
HMUB008A...	0...8 bara	14 bara	60 mV	100 mV	140 mV

Psi pressure ranges

Part number	Operating pressure	Proof pressure ⁴	Full-scale span ⁵		
			Min.	Typ.	Max.
HMUM100...	0...1 psi	30 psi	20 mV	41 mV	83 mV
HMUM350...	0...5 psi	30 psi	39 mV	98 mV	158 mV
HMUB001...	0...15 psi	75 psi	61 mV	103 mV	145 mV
HMUB2x5...	0...35 psi	150 psi	57 mV	96 mV	136 mV
HMUB005...	0...70 psi	200 psi	58 mV	96 mV	136 mV
HMUB010...	0...100 psi	200 psi	41 mV	70 mV	97 mV
	0...150 psi	200 psi	61 mV	103 mV	145 mV
HMUB001A...	0...15 psia	58 psia	30 mV	51 mV	73 mV
	0...30 psia	58 psia	61 mV	103 mV	145 mV
HMUB008A...	0...100 psia	200 psia	51 mV	86 mV	121 mV

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PERFORMANCE CHARACTERISTICS²

($V_S=5.0 V_{DC}$, $T_A=25\text{ °C}$, RH=50 %, pressure applied to high pressure port)

Characteristics		Min.	Typ.	Max.	Unit	
Zero pressure offset	HMUM100...	-40	0	40	mV	
	HMUB001A...	-50	0	50		
	all others	-30	0	30		
Temperature effects (25...85 °C)	Offset	1 psi devices	-0.44	-0.22	0	%FSS/°C
		100 mbar devices	-0.30	-0.15	0	
		350 mbar/5 psi devices	-0.20	-0.07	0	
		100 psi devices	-0.15	±0.03	0.15	
		1 bar/15 psi absolute devices	-0.60	±0.16	0.60	
		2 bar/30 psi absolute devices	-0.30	±0.08	0.30	
		4 bar absolute devices	-0.20	0	0.20	
		all other absolute devices	-0.10	±0.04	0.10	
		all others	-0.10	±0.02	0.10	
		Span	100 mbar/1 psi devices	-0.23	-0.21	
absolute devices	-0.23		-0.19	-0.17		
all others	-0.21		-0.19	-0.17		
Bridge impedance	absolute devices	0.25	0.31	0.36	%°C	
	all others	0.24	0.26	0.31		
Non-linearity ⁶	100 mbar/1 psi devices		±0.50	±0.90	%FSS	
	absolute devices		±0.15	±0.35		
	all others		±0.10	±0.40		
Bridge resistance	absolute devices	2.8	3.4	4.0	kΩ	
	all others	2.8	3.3	3.8		

Specification notes:

1. All wetted materials are selected to give a high level of media compatibility. Media compatibility refers to media inside the pressure port and lid. Improved media compatibility on high pressure port (backward side of sensor chip) since media has no contact to electronic components. Nevertheless tests with the media used in the specific application are recommended.
2. Sensor is specified in air, changes in sensor behaviour based on physical effects caused by the specific media can occur. Weight of the media and wetting forces can influence the sensor characteristics.
3. Storage temperature of the sensor without package.
4. Proof pressure is the maximum pressure which may be applied without causing durable shifts of the electrical parameters of the sensing element.
5. Full Scale Span (FSS) is the algebraic difference between the output signal for the highest and lowest specified pressure.
6. Non-linearity refers to the **Best Straight Line** fit, measured for offset pressure, full scale pressure and 1/2 full scale pressure.
7. Not for all pressure ranges. Please contact First Sensor if operating temperature range -40...+125 °C is required.
8. Tested 1h, up to 85 °C.

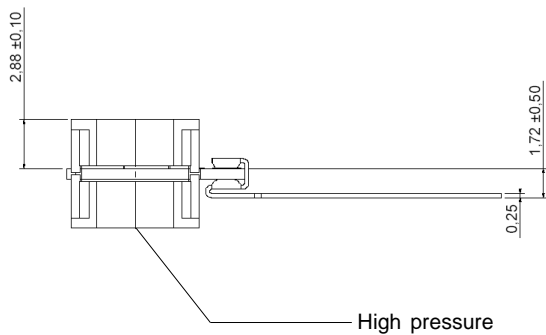
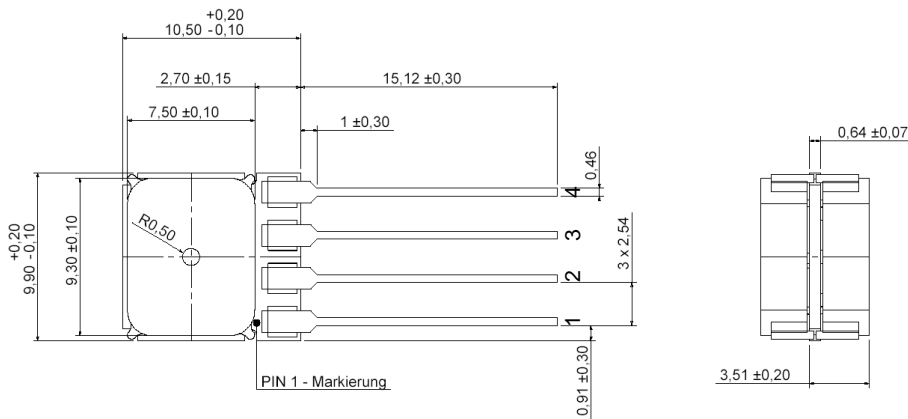
Sensors are electronic components and should be handled only in ESD safe environments.

HMU Series

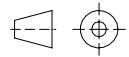
Basic pressure sensors

PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION

HMU...DU1..., ...AX1... (SIL, axial no ports)



Pin	Connection
1	-Vout
2	GND
3	+Vout
4	+Vs



first angle projection

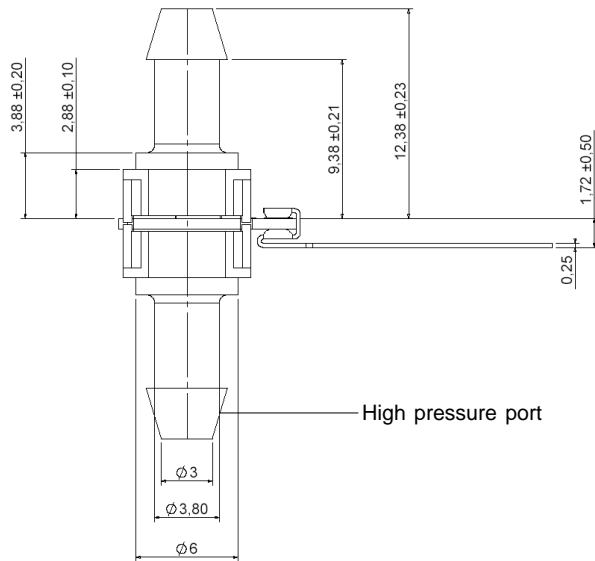
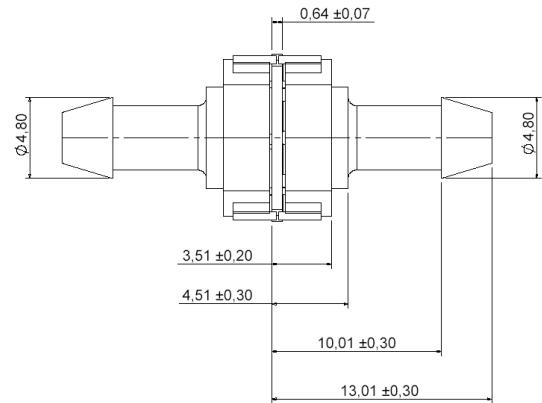
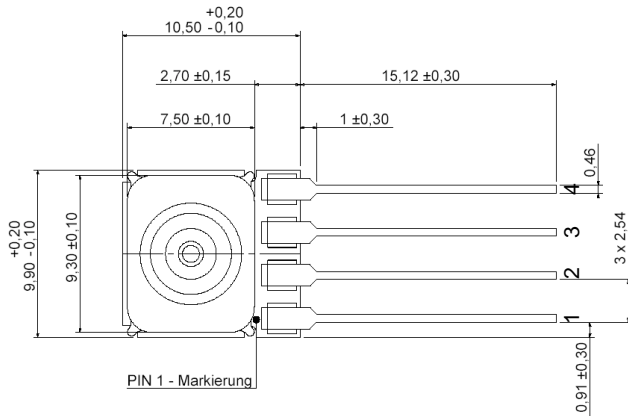
dimensions in mm

HMU Series

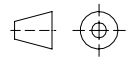
Basic pressure sensors

PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION (cont.)

HMU...DU7... (SIL, 2 ports axial opposite side, barbed)



Pin	Connection
1	-Vout
2	GND
3	+Vout
4	+Vs



first angle projection

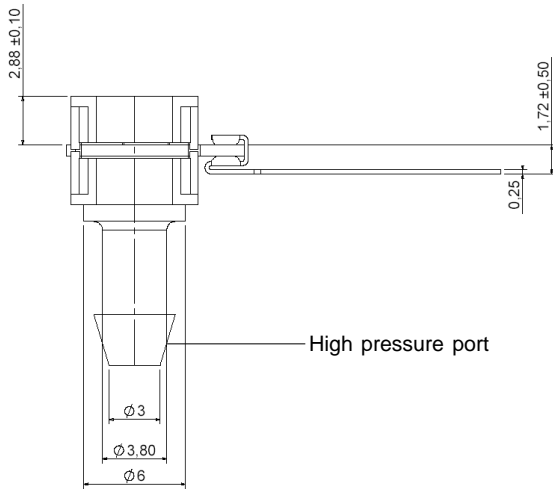
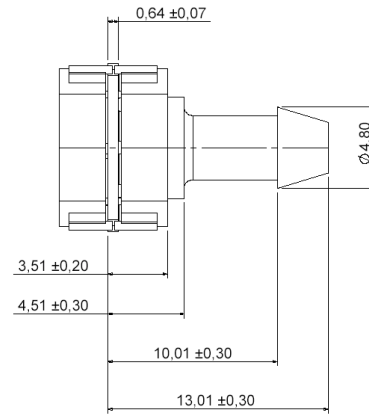
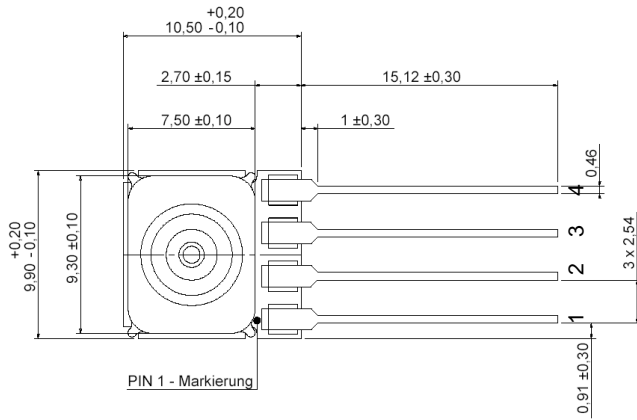
dimensions in mm

HMU Series

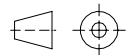
Basic pressure sensors

PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION (cont.)

HMU...GX7..., ...AX7... (SIL, 1 port axial, barbed)



Pin	Connection
1	-Vout
2	GND
3	+Vout
4	+Vs



first angle projection

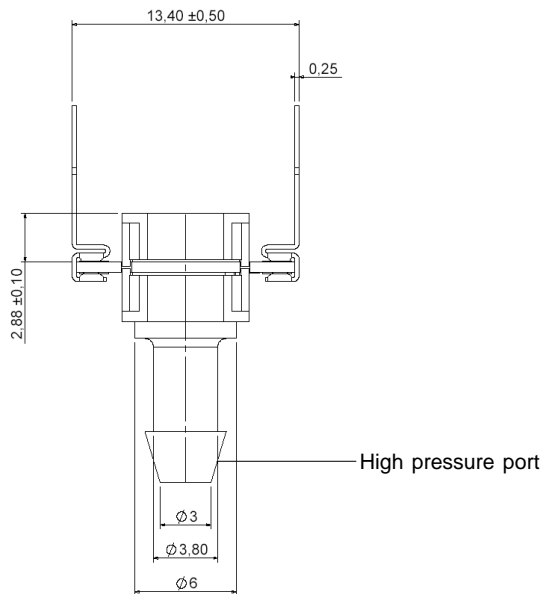
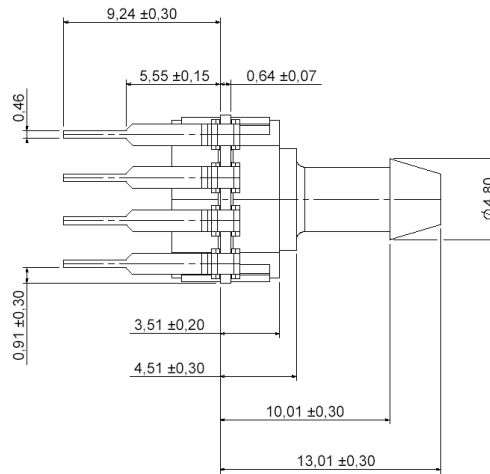
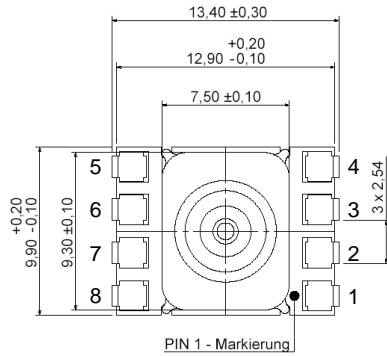
dimensions in mm

HMU Series

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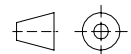
PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION (cont.)

HMU...GZ7..., ...AZ7... (DIP, 1 port axial, barbed)



Pin	Connection
1	-Vout
2	GND
3	+Vout
4	+Vs
5	GND
6	GND
7	I / C*
8	I / C*

* Internal connection.
Do not connect for
any reason



first angle projection

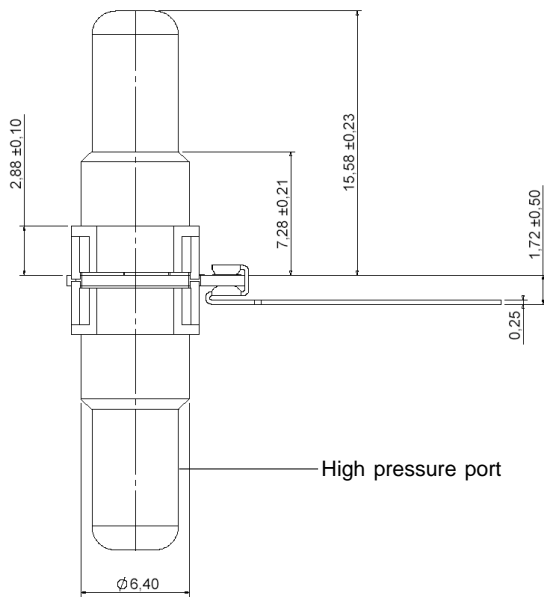
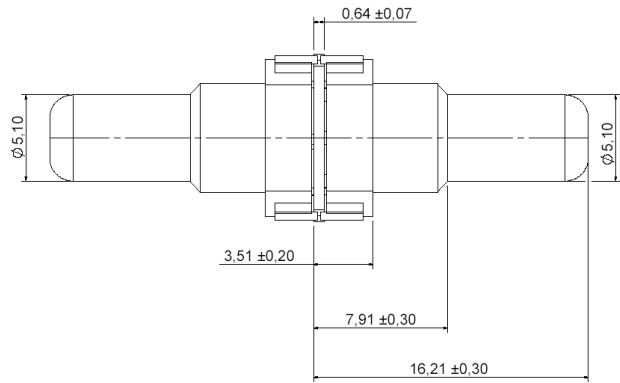
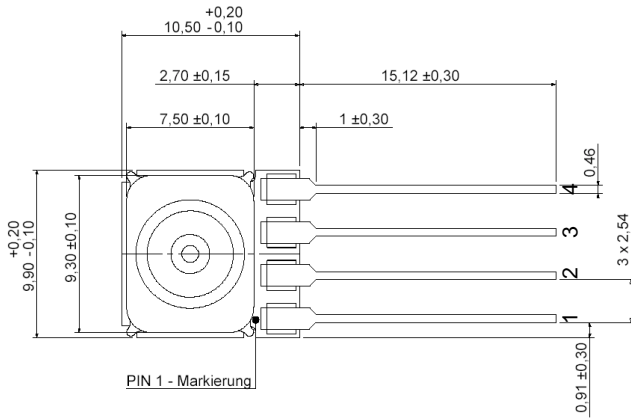
dimensions in mm

HMU Series

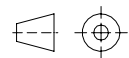
Basic pressure sensors

PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION (cont.)

HMU...DU6... (SIL, 2 ports axial opposite side, straight big)



Pin	Connection
1	-Vout
2	GND
3	+Vout
4	+Vs



first angle projection

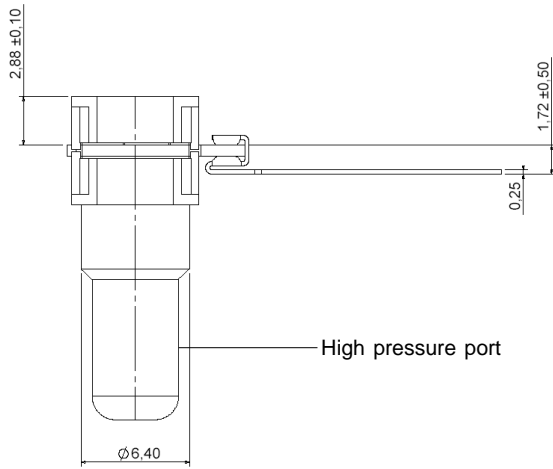
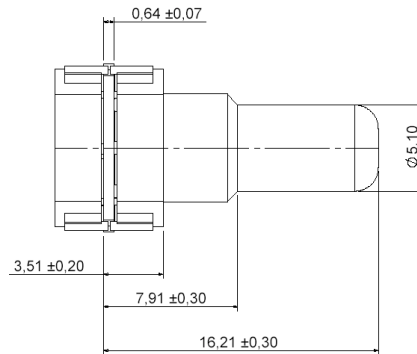
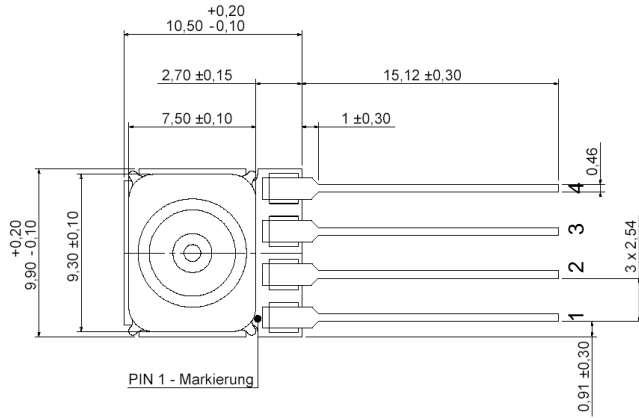
dimensions in mm

HMU Series

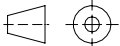
Basic pressure sensors

PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION (cont.)

HMU...GX6..., ...AX6... (SIL, 1 port axial, straight big)



Pin	Connection
1	-Vout
2	GND
3	+Vout
4	+Vs

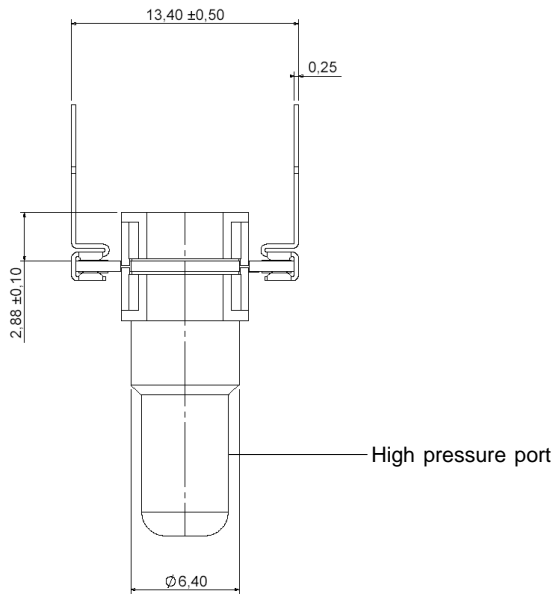
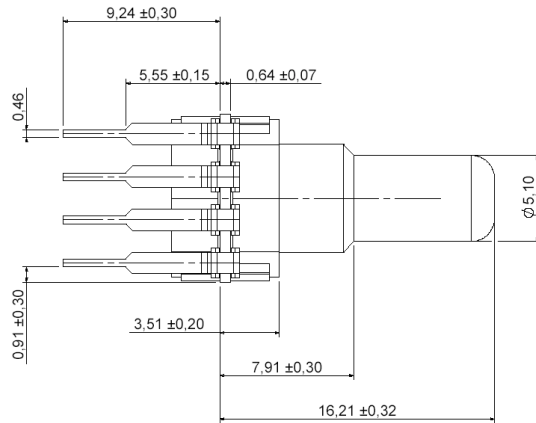
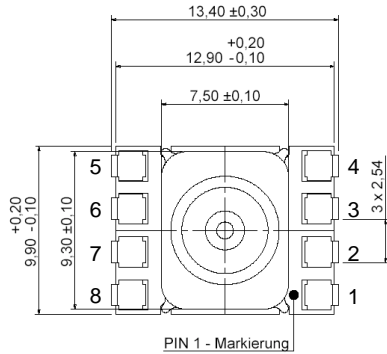

 first angle projection
 dimensions in mm

HMU Series

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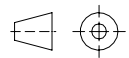
PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION (cont.)

HMU...GZ6..., ...AZ6... (DIP, 1 port axial, straight big)



Pin	Connection
1	-Vout
2	GND
3	+Vout
4	+Vs
5	GND
6	GND
7	I / C*
8	I / C*

* Internal connection. Do not connect for any reason



first angle projection

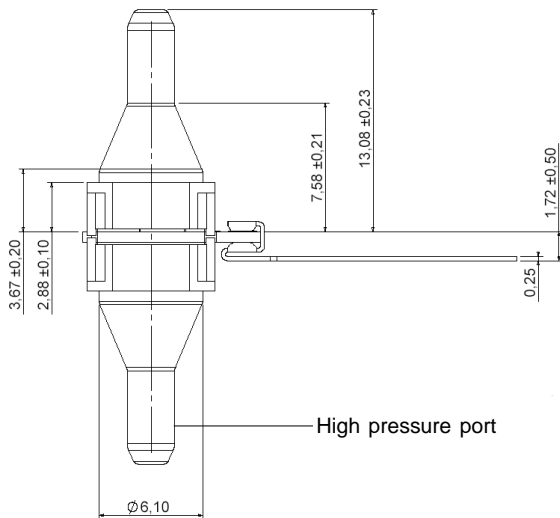
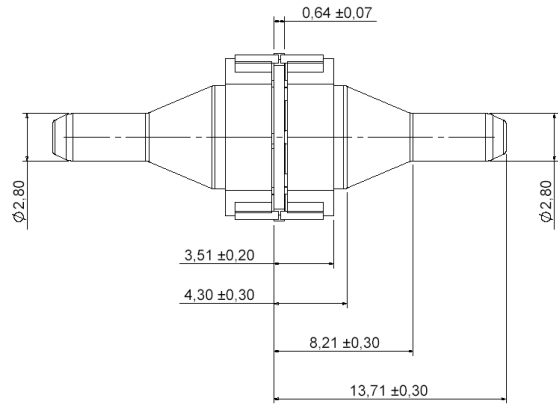
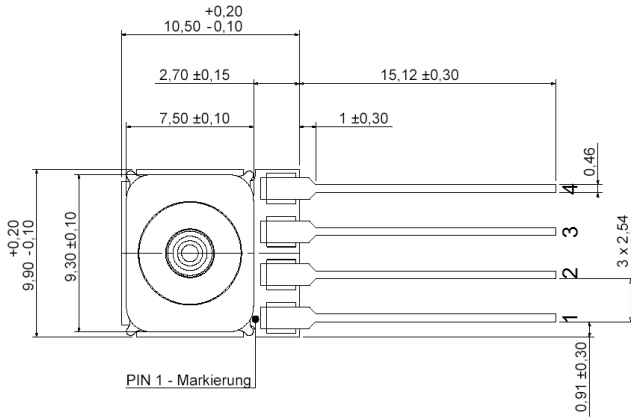
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HMU Series

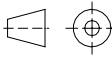
Basic pressure sensors

PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION (cont.)

HMU...DU5... (SIL, 2 ports axial opposite side, needle big)



Pin	Connection
1	-Vout
2	GND
3	+Vout
4	+Vs

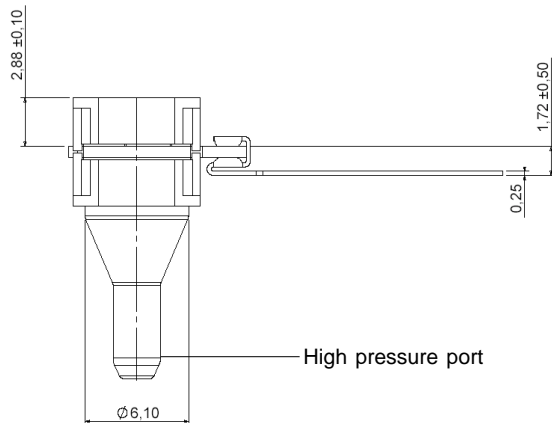
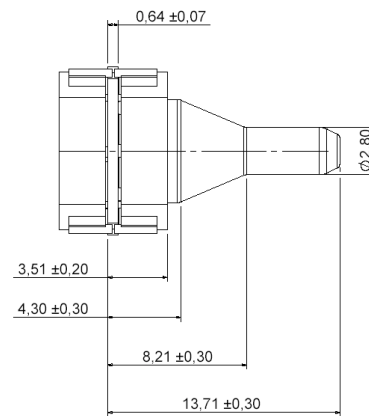
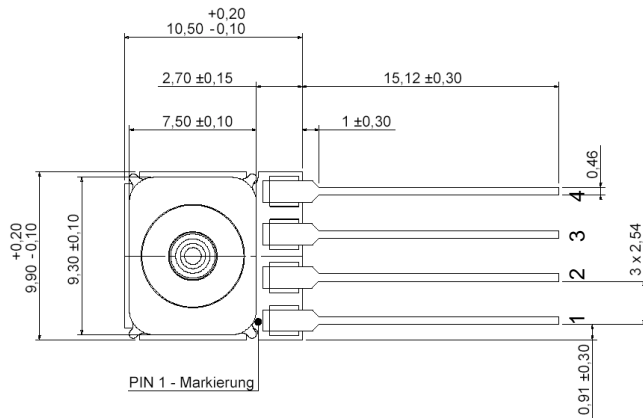

 first angle projection
 dimensions in mm

HMU Series

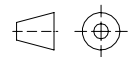
Basic pressure sensors

PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION (cont.)

HMU...GX5..., ...AX5... (SIL, 1 port axial, needle big)



Pin	Connection
1	-Vout
2	GND
3	+Vout
4	+Vs



first angle projection

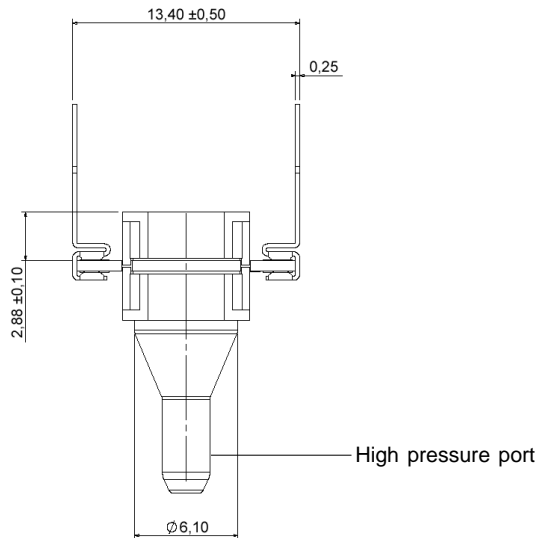
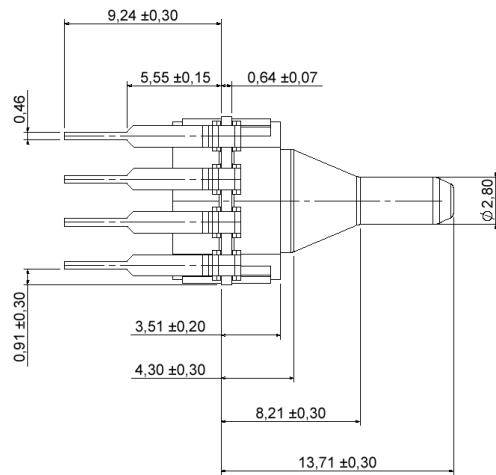
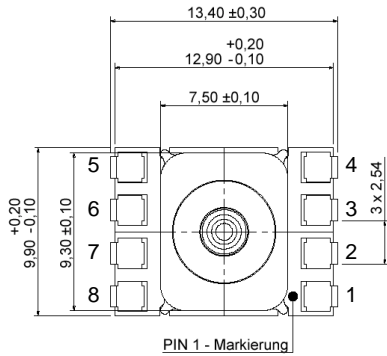
dimensions in mm

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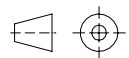
PHYSICAL DIMENSIONS AND ELECTRICAL CONNECTION (cont.)

HMU...GZ5..., ...AZ5... (DIP, 1 port axial, needle big)



Pin	Connection
1	-Vout
2	GND
3	+Vout
4	+Vs
5	GND
6	GND
7	I / C*
8	I / C*

* Internal connection. Do not connect for any reason



dimensions in mm

HMU Series

Basic pressure sensors

NOMENCLATURE

Differential and Gage devices

Options	Series		Pressure range		Pressure mode / Housing		Porting		Grade	
	HMU									
		M100	100 mbar / 1 psi	DU	Differential, SIL, 2 ports axial opposite side	1*	no port	P	Prime	
		M350	350 mbar / 5 psi				7			Barbed
		B001	1 bar / 15 psi	GX	Gage, SIL, 1 port, axial		(5)			Needle big
		B2x5	2.5 bar / 35 psi				(6)			Straight big
		B005	5 bar / 70 psi	GZ	Gage, DIP, 1 port axial		* not available for Gage devices, use Differential devices instead			
		B010	10 bar / 100 psi / 150 psi				() available on request Please contact First Sensor			
Example: HMU B001 GZ 7 P										

Absolute devices

Options	Series		Pressure range		Pressure mode / Housing		Porting		Grade		
	HMU										
		B001	1 bar / 2 bar / 15 psi / 30 psi	AX	Absolute, SIL, 1 port axial	1	no port	P	Prime		
		B004	4 bar				AZ			Absolute, DIP, 1 port axial	7
		B008	8 bar / 100 psi	(5)	Needle big						
							(6)	Straight big			
										() available on request Please contact First Sensor	
Example: HMU B001 AZ 7 P											

LABEL INFORMATION

Digit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	Series			Pressure range	Pressure unit / pressure mode / calibration	Housing	Porting	Grade/voltage	Production code						
Char	M	U	-	HMU	7	100 mbar / 1 psi	U	bar, gage/differential, unidirectional	U	SIL, 2 ports axial opposite side	1	no port	-	High, 5 V	
					J	350 mbar / 5 psi				7	Barbed	7	Barbed	+	Prime, 5 V
					A	1 bar / 15 psi	B	bar, gage/differential, bidirectional	X	SIL, 1 port, axial	5	Needle big	/	High, 3 V	
					B	2.5 bar / 35 psi				6	Straight big	6	Straight big	#	Prime, 3 V
					C	5 bar / 70 psi	A	bara, absolute	Z	DIP, 1 port axial					
					M	10 bar / 150 psi / 8 bara									
					N	4 bara									

First Sensor reserves the right to make changes to any products herein. First Sensor does not assume any liability arising out of the application or use of any product or circuit described herein, neither does it convey any license under its patent rights nor the rights of others.





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.